

ABSTRACT

When a non-oriented electrical steel sheet is manufactured, simultaneously having superior magnetic properties and high strengths, a composition containing 0.02% or less of C, 4.5% or less of Si, 5.0% or less (including 0) of Ni, and 0.2% to 4.0% of Cu is used, and a solute Cu is allowed to appropriately remain in finish annealing. In the steel sheet thus obtained, finely shaped Cu is precipitated by aging treatment, and while the magnetic properties are not degraded, the yield stress is increased to not less than CYS (MPa) represented by the following formula:

note

$$CYS = 180 + 5,600 [\%C] + 95 [\%Si] + 50 [\%Mn] + 37 [\%Al] + 435 [\%P] + 25 [\%Ni] + 22d^{-1/2}$$

where d is an average grain diameter (mm) of crystal grains.